OBJECTIVES: To assess the relative effects and costs of Oralair® versus Grazax®, ALK Depot SQ® (alongside symptomatic medication) and symptomatic treatment alone for grass pollen allergic rhinitis; based on a systematic literature review, meta-analysis and cost-effectiveness analysis. **METHODS:** The costs and effects of three year treatment were assessed for a period of 9 years using a Markov model. Efficacy was estimated using an indirect comparison of available clinical trials. Estimates for immunotherapy discontinuation, occurrence of asthma, health state utilities, drug acquisition costs, resource use and other medical costs were derived from published sources. The analysis was conducted from the German payer's perspective, including Statutory Health Insurance (SHI) payments and co-payments by insurants. Effects were reported as quality adjusted life years (QALYs) and symptom-free days (SFDs). The uncertainty around the incremental model outcomes was tested by means of extensive deterministic univariate and probabilistic sensitivity analyses; various scenario analyses were also conducted. **RESULTS:** In the base case analysis the model predicted a cost-utility ratio of Oralair® versus symptomatic treatment of €14,728 per QALY: incremental costs were €1,356 (95%CI: €1,230;€1,484) and incremental QALYs 0.092 (95%CI: 0.052;0.140). Oralair® was the dominant strategy compared to Grazax® and ALK Depot SQ®, with estimated incremental costs of -€1,142 (95%CI: -€1,255;-€1,038) and -€ 54 (95%CI: -€188;€85) and incremental QALYs of 0.015 (95%CI: -0.025;0.056) and 0.027 (95%CI: -0.022;0.075), respectively. At a willingness-to-pay threshold of €20,000, the probability of Oralair® being the most cost-effective treatment was predicted to be 79%. The univariate sensitivity analyses show that the results were especially sensitive to changes in transition probabilities of immunotherapy discontinuation and efficacy estimates. Calculations on SFDs showed a comparable cost-effectiveness trend. **CONCLUSIONS:** The analysis suggests Oralair® to be cost-effective compared to Grazax®, ALK Depot SQ® and symptomatic treatment. The robustness of these statements has been confirmed in extensive sensitivity analyses.

PRS42

PHARMACOECONOMIC ANALYSIS OF METHYLPREDNISOLONE ACEPONATE FOR TREATMENT OF ATOPIC DERMATITIS AND ECZEMA

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OBJECTIVES: To conduct comparative pharmacoeconomic analysis of Methylprednisolone aceponate (MA) and Betamethasone valerate (BV, brand name drug) for treatment of atopic dermatitis and eczema in adults. **METHODS:** Review of the published studies has been conducted to evaluate the comparative efficacy and safety of studied drugs. The cost-minimization analysis was used further. The pharmaceutical costs were calculated on the basis of average wholesale prices (according to RMBC/IMS database for the 3d quarter of 2010) and average retail prices in Moscow drugstores on 15.12.2010. The dosing regimen for both drugs was 1 g per 30 cm2 for 10 days, MA once a day, BV twice daily. **RESULTS:** A review of clinical efficacy and safety of topical corticosteroids studies has not revealed significant differences between MA and BV, though the experts consider MA to have more favorable therapeutic index (combination of high anti-inflammatory activity with reliable safety profile) compared to BV. With the retail price the costs of atopic dermatitis and eczema treatment were almost equal for MA and brand name drug of BV: MA cream - 257,85 ± 19,83 RUB (9,15 ± 0,70 $), BV cream - 265,61 ± 33,34 RUB (9,43 ± 1,18 $), MA ointment- 257,85 ± 19,83 RUB (9,15 ± 0,70 $), BV ointment - 265,61 ± 33,34 RUB (9,43 ± 1,18 $). **CONCLUSIONS:** Costs of MA and brand name BV for treating atopic dermatitis and eczema in adults are identical in both retail and wholesale market segments. Thus MA may be considered as a preferable option being a medication with the better therapeutic index compared to BV.

PRS43

PHARMACOECONOMIC EVALUATION OF ANTIBIOTIC THERAPY OF COMMUNITY-ACQUIRED INFECTIONS OF THE LOWER RESPIRATORY TRACTS BY THE USE OF MOXIFLOXACIN VERSUS CLARITHROMYCIN IN UKRAINE

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OBJECTIVES: The community-acquired respiratory tract infections (CARTI) are the most frequent indicators for antibacterial preparations prescription, that requires significant costs. Traditionally, penicillins and macrolids are used for it. Certain perspectives of CARTI treatment are connected with the new generation "respiratory" fluoroquinolones use, that have high antibacterial activity in relation to S. pneumoniae, but are rather expensive, especially in Ukraine. The aim of this work was comparative evaluation of costs efficiency for patients treatment with community-acquired pneumonia (CAP) and exacerbations of chronic bronchitis (ECT) with antibacterial preparations such as fluoroquinolone moxifloxacin versus macrolid clarithromycin for the optimal use of patient's or state's financial expenses grounding. **METHODS:** cost-minimization and sensitive analysis. **RESULTS:** The results of G. Hoffken, H.P. Meyer, K. Sprenger et al.(1999) have been used for pharmacoeconomic evaluation. In the trial 531 patients took place and it lasted 10 days. The treatment regimes were: moxifloxacin (200 mg / day); moxifloxacin (400 mg / day); clarithromycin (500 mg / two times a day). For pharmacoeconomic evaluation of ECT treatment the results of trial (R. Wilson, R. Kubin, I. Ballin et al., 1999) have been used: 649 patients took part in trial. The trial lasted 7 days. The treatment regimes were: moxifloxacin (400 mg / one time a day) for 5 days, clarithromycin (500 mg / two times a day) for 7 days. Efficacy of moxifloxacin and clarithromycin for CAP and ECT was equal. **CONCLUSIONS:** The results of "cost-minimization" analysis are sensitive to prices for drugs changing, and it does not create stable advantages for clarithromycin. In case of maximal price for drugs, it is moxifloxacin that has advantages.

PRS44

COST UTILITY ANALYSIS OF OMALIZUMAB THERAPY FOR SEVERE ASTHMA PATIENTS IN THAILAND

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OBJECTIVES: Asthma is a common chronic disease affecting approximately 4 million or 6.2% of Thais. Most asthmatic patients under the universal health coverage (UC) scheme are poor, and cannot access to appropriate treatments due to geographical barriers, and high costs of medications. Severe asthmatic patients not improved with inhaled corticosteroids (ICS) and long acting beta agonists (LABA) rarely access to Omalizumab, an anti IgE medication, because of its high costs, and exclusion from the UC benefit package. This study explores cost-utility analysis in societal perspective between Omalizumab and standard medical treatments (ICS, LABA, or oral corticosteroid) for severe asthmatic patients. **METHODS:** A mathematical model using variables and data from comprehensive literature reviews and asthma policy model were employed. Data on costs of medication and health service use were computed from existing reports of the Ministry of Public Health. The quality of life of asthma patients was assessed by the Asthma Quality of Life Questionnaire (AQLQ). **RESULTS:** Results from the mathematical model indicate that using Omalizumab compared to other standard medical treatments would achieve 231 quality-adjusted years (QALY) with additional costs of 95 million Baht (approximately US$ 3 million) for 100 severe asthmatic patients. The incremental cost-effectiveness ratio (ICER) of Omalizumab is approximately 414,503 Baht (US$13,371) per QALY gained. This ICER exceeds 1 GDP per capita which is the criteria for including new health interventions into the UC benefit package. **CONCLUSIONS:** Omalizumab is not cost-effective for severe asthma patients in Thailand. It is recommended that improving access to ICS and LABA and maintenance systemic steroid should be the priority of medial care for asthma patients in Thailand, prior to including Omalizumab into the UC benefit package. Omalizumab will be considered to be cost-effective if its cost decreases significantly and used for severe asthmatic patients only.

PRS45

FULLY INCREMENTAL COST-EFFECTIVENESS ANALYSIS OF AVAILABLE TREATMENT OPTIONS IN THE MANAGEMENT OF SEVERE COPD IN THE UK SETTING

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OBJECTIVES: Despite availability of current treatments, patients with chronic obstructive pulmonary disease (COPD), associated with chronic bronchitis, often experience life-threatening and costly exacerbations. The aim of this analysis was to assess the long-term costs and outcomes associated with different treatment options for the management of severe COPD in the UK. **METHODS:** A Markov cohort model was constructed to simulate decline from severe to very severe COPD (as defined by the NICE/GOLD guidelines), treatment regimen changes, and death. Community- and hospital-treated exacerbations were modelled as events within each health-state. A fully incremental cost-effectiveness analysis was conducted for LABA, LAMA, PDE-4 inhibitors, and ICS in various combinations. Transition probabilities for COPD progression were derived from published epidemiological sources. Relative rate ratios of exacerbations were taken from a recently published mixed treatment comparison. Direct costs were sourced from UK data, and health state utilities and exacerbation disutilities from the published literature. Analyses were conducted from the UK NHS perspective, based on a 30-year time horizon, with costs and outcomes discounted at 3.5% p.a. One-way and probabilistic sensitivity analyses were conducted. **RESULTS:** The cost-efficiency frontier suggests LAMA as the most effective monotherapy (£22,370, 5.421 QALYs). If patients continue to exacerbate, LAMA+LABA/ICS is a cost-effective second line option (£22,816, 5.484 QALYs, ICER £7,045/QALY), followed by LAMA+LABA/ICS+roflumilast (£23,230, 5.509 QALYs, ICER £16,566/QALY). For patients who are intolerant to (or decline) ICS, the addition of roflumilast to LAMA+LABA is a cost-effective treatment option (ICER £13,764/QALY). The results were consistent under a variety of assumptions. **CONCLUSIONS:** For severe COPD patients who continue to exacerbate, despite current standard of care, the addition of roflumilast to the treatment regimen is cost-effective in UK clinical practice. The addition of roflumilast in this manner is consistent with the step-wise treatment paradigm recommended in NICE guidelines.

PRS46

EFFECTIVENESS AND COST-UTILITY ESTIMATES OF TIOTROPIUM TREATMENT AND PULMONARY REHABILITATION PROGRAMS IN FRENCH PATIENTS WITH CHRONIC OBSTRUCTIVE PULOMONARY DISEASE

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OBJECTIVES: Chronic obstructive pulmonary disease (COPD) is a progressive (and non-completely reversible) inflammatory lung disease. Disease progression is associated with increasing morbidity, mortality and economic burden. As compared to usual care, tiotropium treatment and pulmonary rehabilitation programs have been reported to improve the health of COPD patients in terms of exacerbations, quality of life, and mortality. However, to date, the cost-effectiveness/utility of these therapies in French settings have not been reported. We estimated the cost-utility/effectiveness of these therapies in a patient population recruited from French general practitioners and lung specialists. **METHODS:** A Markov model of

the disease was developed and the study adopted society's perspective while the horizon time considered was patient's remaining lifespan. Cohorts of COPD patients treated with Tiotropium or cohorts of patients undergoing pulmonary rehabilitation programs were simulated (Monte-Carlo simulations in TreeAge software) and compared to identical cohorts of patients subjected to usual care. Life expectancies, quality adjusted life-years (QALY), disease-related costs, and incremental cost-utility ratios were estimated. **RESULTS:** At the horizon of a patient's remaining lifetime (14.29 life years in average, considering a population combining moderate to very severe patients), tiotropium would result in 0.12 life years and 0.58 QALY gained (mean estimates), induce an additional cost of 5380 €/patient in the disease-related costs, with a corresponding incremental cost-utility ratio of 8853 €/QALY. For pulmonary rehabilitation programs, these estimates were 0 life years, 0.31 QALY, 2,969 €, and 12,000 €/QALY, respectively. Results were mostly sensitive to the utility changes associated with exacerbations. **CONCLUSIONS:** Tiotropium treatment and pulmonary rehabilitation programs were estimated as worth interventions in the studied population, below the usual threshold used for declaring procedures as cost effective. Nevertheless, the modest gains in health issued from the study emphasize the need of research for developing more effective COPD-related therapies.

PRS47

OPTIMA MODEL-BASED COST-UTILITY ANALYSIS OF FIXED COMBINATION SALMETEROL/FLUTICASONE VERSUS NON-FIXED COMBINATION BUDESONIDE/FORMOTEROL IN ONE PACK FOR BRONCHIAL ASTHMA TREATMENT

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OBJECTIVES: To assess costs, utilities and cost-utility of fixed combination salmeterol/fluticasone (SAL/FP maintenance treatment) versus non-fixed combination budesonide + formoterol in one pack (BUD+FORM maintenance treatment) in the management of patients with bronchial asthma by means of an OPTIMA model. **METHODS:** In this analysis we used the following data: drug prices (from List of Maximum Permissible Manufacturer Prices for Vital and Essential Drugs) and drug dosage proportion (from MRC Pharmexpert, 4Q 2010); number of inhalations per day (from instructions); QOL and number of health care resources for controlled and uncontrolled asthma (from published sources); resource unit costs (from 2010 health care insurance program). Work-off day costs included tax deficiency, GDP underproduction and sick pay. Frequency of controlled asthma was obtained from ARROW study (Ogorodova et al., 2009) for SAL/FP (73%) and from FACET trial (O'Byrne et al. 2008) for BUD+FORM (62%). Conceptual formula of analysis was: cost of drugs + % controlled * cost of controlled + % uncontrolled * cost of uncontrolled. One-way sensitivity analysis was conducted to assess the robustness of the results. **RESULTS:** Average monthly costs of drugs were 1,677 RUR/€42 and 2,023 RUR/€51 for SAL/FP and BUD+FORM respectively. Medical costs and QOL measures were 378 RUR/€9 and 0.75 for controlled asthma; 88,295/€2,207 RUR and 0.49 for uncontrolled asthma. Yearly total costs per patient were higher for BUD+FORM than for SAL/FP (58,057/€1,451 RUR vs. 44,244 RUR/€1,106). Compared to BUD+FORM, SAL/FP was associated to an expected increase of QALYs per patient (0.68 QALYs vs. 0.65 QALYs). The cost-utility analysis showed that SAL/FP was dominant (less costly and more effective in terms of QALYs gained). Results were sensitive to all the parameters varied in the sensitivity analysis, especially health care costs. **CONCLUSIONS:** Treatment of patients with bronchial asthma with SAL/FP is a dominant strategy in comparison with non-fixed combination BUD+FORM in one pack.

PRS48

COST-UTILITY ANALYSIS OF VARENICLINE VS EXISTING SMOKING CESSATION STRATEGIES IN EL SALVADOR

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OBJECTIVES: Smoking is the leading cause of preventable death in El Salvador (50%) and results in many serious comorbidities, including lung cancer, coronary heart disease, stroke and chronic respiratory disease. The aim of this study was to evaluate the cost-utility of varenicline compared to other existing strategies for smoking cessation within a 5-year time horizon in El Salvador using the healthcare payer's perspective. **METHODS:** The Benefits of Smoking Cessation on Outcomes (BENESCO) simulation model was used for an adult cohort (n=4,537,803). Diseases included were: stroke, lung cancer, coronary heart disease and chronic obstructive pulmonary disease. Smoking cessation therapies compared were: varenicline (0.5 – 2 mg/day), bupropion (300 mg/day), nicotine replacement treatment (NRT) (5-10 mg/day) and unaided cessation. Effectiveness measure was: quality-adjusted life year gained (QALY's), which was obtained from published literature. Resource use and costs data were obtained from El Salvador's Ministry of Health and Social Security official databases (2010). The model used a 3% discount rate for costs (expressed in 2010 US dollars) and QALYs. Probabilistic sensitivity analyses (PSA) were conducted and acceptability curves were constructed. **RESULTS:** Varenicline reduced smoking related morbidity, mortality and healthcare costs. After 5 years, Varenicline gained 306,158 QALYs, which represents 73, 94 and 178 more QALYs than bupropion, NRT and unaided cessation, respectively. Overall costs showed varenicline as the least expensive option against bupropion (+US$328,558), NRT (+US$412,730) and unaided cessation (+US$777,124). Cost-effectiveness analyses showed that varenicline was the dominant strategy. Acceptability curves showed that varenicline would be cost-effective within <3 GDP per capita threshold. PSA results support the robustness of the findings. **CONCLUSIONS:** Smoking cessation therapy with varenicline is cost-saving in El Salvador. These results could help to reduce the tobacco related disease burden and align cost-containment policies.

PRS49

ECONOMIC BURDEN ATTRIBUTABLE TO OBESITY IN ADULT PATIENTS WITH ASTHMA IN THE UNITED STATES

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OBJECTIVES: To estimate annual medical and productivity costs attributable to obesity in adult patients with asthma in the US. **METHODS:** This study used the 2003-2008 Medical Expenditure Panel Survey. Asthma patients(18-64 years) were identified using ICD-9-CM code 493, clinical classification code-128, or physician diagnosis. Patients were classified as normal(BMI:18.5-<25 kg/m2), overweight-(BMI:25-<30 kg/m2) or obese(BMI:≥30 kg/m2). Medical costs were estimated using a generalized linear model(GLM) with a log link function and gamma distribution. Costs associated with productivity loss were calculated based on missed working days due to illness and average hourly wage using a two part model. In the first part, logistic regression was used to estimate the probability of having missed working days due to illness. In the second part, among patients with missed working days, GLM was used with the estimated probability from first part of model to estimate the cost associated with productivity loss. The costs attributable to obesity were estimated by differences between the observed and estimated cost in obese patients, using a distribution of covariates obtained from normal patients. All costs were converted to 2010 US dollars using price indices. **RESULTS:** A total of 8775 adults were identified with asthma. The average treatment cost and lost productivity costs of normal patients were $3154(95%CI:$2689-$3620) and $327(95%CI:$279-$375), and those of obese patients were $5720(95%CI:$5314-$6129) and $699(95%CI:$608-$790), respectively. Obese patients had 38% higher medical cost and 53% higher lost productivity costs after adjusting for other study variable.Additional medical costs attributable to obesity were calculated at $1087 (95%CI:$687-$1487) and lost productivity costs attributable to obesity were $279(95%CI:$191-$368). **CONCLUSIONS:** The economic burden of asthma among US adults is substantial which is only further amplified by the presence of obesity. This study highlights the importance of obesity control to reduce the cost of treating asthma patients and enhance productivity.

PRS50

THE DUTCH 1-YEAR RESOURCE USE RESULTS FROM THE EXPERIENCE STUDY, AN INTERNATIONAL REGISTRY OF REAL-WORLD OUTCOMES FOR ASTHMA PATIENTS TREATED WITH OMALIZUMAB

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OBJECTIVES: The objective is to describe the healthcare resource utilization and cost patterns associated with severe uncontrolled allergic asthma, based on data from Dutch patients collected in the EXPERIENCE study. **METHODS:** EXPERIENCE was a prospective, open-label, observational, multicenter, multicountry study in patients with severe persistent allergic asthma treated with omalizumab. The Global Evaluation of Treatment Effectiveness (GETE) was used to evaluate patient response. Healthcare resource use and number of exacerbations were captured for one year prior to the start of the study for all patients and continued for 104 weeks until end of the study. Hospitalizations, specialist visits and medications were included in this analysis for year before study and first year of study. Unit cost prices taken from 2010. **RESULTS:** A total of 154 subjects were included in ITT population. There were 2.5 clinically significant (CS) exacerbations/patient year prior compared to 0.90 CS exacerbations/patient for year of study on omalizumab. The total number of CS severe (CSS) exacerbation was 0.95 CCS exacerbations/patient for year prior and 0.26 CSS exacerbations/patient for year of study. The results indicate that patients in this study have an average cost of €4257/patient in the year prior to the study and €2583/patient cost during the study year, excluding omalizumab costs. The biggest cost drivers are hospitalization, work days lost and other asthma medications. The total omalizumab costs were €12,652/patient plus €1,171/patient for administration cost. **CONCLUSIONS:** This study reflects real life clinical practice and associated costs for omalizumab treatment of severe allergic asthma patients. It indicates a reduction in CS and CSS exacerbation rates of 64% and 73%, respectively associated with a 40% reduction in treatment costs when using omalizumab. Keeping in mind the study limitations associated with the observational setting, it provides estimated costs for patients with severe uncontrolled allergic asthma based on 'real-world' Dutch practice patterns.

Respiratory-Related Disorders – Patient-Reported Outcomes & Preference-Based Studies

PRS51

THE DEVELOPMENT OF THE EARLY MORNING SYMPTOMS OF COPD INSTRUMENT (EMSCI)

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